

Faculty of Education

Lesson Plan Template

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| **Subject / Course:** Science | **TC Name:** Ms Victoria Lyttle |
| **Grade Level:** 7/ 8 | **Date:** October 15, 2010 |
| **Topic:** Central Tendency: Mean, Median, Mode | **Time of Class:** 9:00 – 10:20 am |
| **AT Name:** Mr Andrew Moss | **Room # / Location:** 22 |
| **1. Instructional Expectations and Opportunities** |  |
| 1. **Expectations**:  |  | | --- | | *Data Relationships* – determine, through investigation, the effect on a measure of central tendency  (i.e., mean, median, and mode) of adding or removing a value or values (e.g.,   changing the value of an outlier may have a significant effect on the mean but no   effect on the median)   (***Sample problem:*** Use a set of data whose distribution across its range looks   symmetrical, and change some of the values so that the   distribution no longer looks symmetrical. Does the change affect   the median more than the mean? Explain your thinking.) | | |
| 1. **Goal(s) for the lesson:**  |  | | --- | | 1. Students will identity the mean of a set of numbers. 2. Students will identify the median of a set of numbers. 3. Students will identify the mode of a set of numbers. | | |
| **2. Preassessment and Accommodations/Modifications** | |
| |  |  | | --- | --- | | **Preassessment:** | **Accommodation/Modification** | | **Academic Needs:**  **Behavioural/Social/Emotional Needs:**  **Physical Needs**  **Diversity Needs:** | Finish Early: Have them work on their consolidation   Ticket-Out-of-Class  Cannot Understand: Try explaining concept again using   a different angle (easier   terminology, gestures, diagrams)  Easily Distracted: Engage students who are easily   distracted; Keep class flowing so   things don’t stay the same too long.  Don’t Participate: Think-Pair-Share  Talk Out: Don’t take their answers unless they raise   their hands.  N/A  N/A | | |

**3. Learning Environment**

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| Lesson/Seatwork: Students will be working alone, and in pairs.  Activity: Students will work both independently and as a group for the activity. I’ll use the “When I say “go””   method as a transition |

**4. The Overview (Agenda) for your lesson:**

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| Minds On: Mean, Median, Mode  The 3 Ms  Pulse |

**5. Resources and Materials for your class**

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| * Dry erase markers * Spare pens/pencils * Student dry erase boards * Timer * Computer * Projector * Ticket-Out-of-Class Hand Out (24 copies) |

**6. Content, Teaching Strategies, for Lesson**

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| ***Time*** | ***Teaching or***  ***Assessment Strategy*** | ***Detailed Description*** |
| *.5 min*  *.5 min*  *2:00 min* | ***Before Class:***  ***Introduction***  *Greet class*  *Bell Work*  *Minds-On* | * Set up and turn on projector * *Load Minds-On:* <http://www.youtube.com/watch?v=uydzT_WiRz4> * Write Agenda on board * Write Bell work on board * Write table from last day up   Greet class, introduce Peter Morris (Mr Morris)  Take Up Bell Work  Mean, Median, and Mode song <http://www.youtube.com/watch?v=uydzT_WiRz4> |
| *1 min*  *2 min*  *5 min*  *4 min*  *6 min*  *5 min*  *4 min*  *4 min*  *5 min*  *0.5 min*  *0.5 min*  *0.5 min*  *0.5 min*  *0.5 min*  *2 min*  *0.5 min*  *5 min*  *4 min*  *0.5 min*  *1.5 min*  *0.5 min*  *5 min*  *0.5 min*  *3 min*  *3 min*  *2 min*  *2 min* | ***Instruction***  *Transition*  *Review of last day*  *Mean*  *Think-Pair-Share*  *Independent Eye Colours*  *Median*  *Think-Pair-Share*  *Independent Eye Colours*  *Mode*  *Transition*  *Acquire New Data*  *Start Activity*  *Transition*  *Measure pulse*  *Review*  *Mean*  *Median*  *Mode*  *Discussion* | *Get students back to their seats and take out math books*  *All right, so what did we do yesterday?*   * *Lined up by birthday* * *Found out how many were born each month* * *Found out eye colour of each student in each month* * *Looked for correlation* * *Did not find one* * *See attached page for results*   *Ask class what they think “mean” is*   * *Use homework for the weekend as weak attempt at humour*   *Mean (Average): sum of the data values divided by the number of data values*  *Find mean of birthday data: 2*  *Did you get the same number as the person beside you?*  *What did you get?*  *2*  *What month(s) has the same amount of people born in it as the mean?*  *Jan, Mar,Nov*  *Find Mean of eye colours: Brown: 0.92; Green: 0.42; Blue: 0.75*  *Ask class what they think median is*   * *Can use the fact that it sounds like medium*   *Median: the middle number when numbers in a set are arranged in order*  *First Step: Put values in order from lowest to highest*  *Second Step:*  *Odd number of data point: Find middle value*  *Even number of data points: find two values on either side of middle point   and take the mean of the two.*  *What is the median value from the birthday data set?*  *Check it with your partner.*  *What did we get?*  *2*  *What is the median of the brown eye data?*  *1*  *What is the median of the green eye data?*  *0*  *What is the median of the blue eye data?*  *0*  *Ask class what they think “mode” is*   * *Use videogame humour “Beginner, Intermediate, Expert”*   *Mode: number that occurs the most often*  *\*Note: Sometimes there is more than one mode ex/ 1, 1, 2, 2, 3*  *Sometimes there is no mode for a set of values ex/ 1, 2, 3, 4, 5*  *What is the mode of the birthday data?*  *2, 3*  *What is the mode of the Brown eye data?*  *0, 1*  *What is the mode of the Green eye data?*  *0*  *What it the mode of the Blue eye data?*  *0*  *Have students take out their white boards.*  *Have students take their pulse sitting quietly for 1 minute. (May need to help students find their pulse).*  *Have them record their pulse on their boards.*  *Get the students beats/minute on the white board*  *Atom”Activitiy” (inclusive modification)*   * *Students mingle independently* * *Clap hands and say a number and the students have to make a group containing that number* * *If there are people left over have them “hide” within the atom* * *Play a bunch of rounds*   *Purpose: To get pulses up*  *Have students return to their seats.*  *Measure pulses for 1 minute*  *Compare new pulse rate with old one.*  *Get new pulses on the board*  *Would this be an example of correlation, or causation?*  *Find the mean of each pulse set.*  *Find the median of each pulse set.*  *Find the mode of each pulse set.*  *Is anyone close to the mean?*  *Off by 1? 2? 3? Etc*   * *May need to discuss outliers*   *(Outlier: data that is significantly different than the other numbers* |
|  | ***Application*** | *Students should be able to analyze data and be able to find trends in it. This may be important in their lives when they are receiving stats about favourite sports teams and players, or hearing them in commercials, to understand what they actually mean.* |
| *2 min*  *2 min*  *6 min* | ***Consolidation***  *Real World Applications*  *(Think-Pair-Share)*  *Review Concepts*  *Ticket Out of Class* | *Who would use mean, median, or mode in the real world?*   * *Sports* * *Report cards (GPA)* * *Weather*   *Get students to define what a mean, median, and mode is*  *On their own, have students answer the following:*     1. *What did you like about today’s lesson?* 2. *What DIDN’T you like about today’s lesson?*   *Find the mean, median, and mode of the following sets of numbers:*   1. *2, 5, 6, 7, 5* 2. *4, 8, 2, 6, 6* |

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| **Month** | **# of Students Born** | **Brown** | **Green** | **Blue** |  |  |  |  |  |  |  |  |
| **Jan** | 2 | 1 | 1 | 0 |  |  |  |  |  |  |  |  |
| **Feb** | 0 | 0 | 0 | 0 |  |  |  |  |  |  |  |  |
| **Mar** | 2 | 0 | 0 | 2 |  |  |  |  |  |  |  |  |
| **Apr** | 1 | 1 | 0 | 0 |  |  |  |  |  |  |  |  |
| **May** | 4 | 4 | 0 | 0 |  |  |  |  |  |  |  |  |
| **June** | 3 | 1 | 0 | 2 |  |  |  |  |  |  |  |  |
| **July** | 3 | 0 | 1 | 2 |  |  |  |  |  |  |  |  |
| **Aug** | 0 | 0 | 0 | 0 |  |  |  |  |  |  |  |  |
| **Sept** | 4 | 2 | 0 | 2 |  |  |  |  |  |  |  |  |
| **Oct** | 1 | 1 | 0 | 0 |  |  |  |  |  |  |  |  |
| **Nov** | 2 | 0 | 2 | 0 |  |  |  |  |  |  |  |  |
| **Dec** | 3 | 1 | 1 | 1 |  |  |  |  |  |  |  |  |
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| **Mean** | 2.083333333 | 0.9167 | 0.417 | 0.75 |  |  |  |  |  |  |  |  |
| **Median** | 2 | 1 | 0 | 0 |  |  |  |  |  |  |  |  |
| **Mode** | 2, 3 | 0, 1 | 0 | 0 |  |  |  |  |  |  |  |  |
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| **Birthdays** | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 |
| **Brown Eyes** | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 4 |
| **Green Eyes** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 |
| **Blue Eyes** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 |

**7. Reflections: To be completed after you have taught the lesson.**

**a) Effectiveness of your lesson***.*

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| **What was effective/ineffective about your lesson** | **How do you know?** | **What steps will you take to improve?** |
| *Minds On video was effective* | *Students had a grasp on concepts being taught, even if it was a brief introduction* | *Continue to find entertaining ways to introduce new ideas to the class. I would like to try find a good Minds On the does not involve invoking the powers of the all mighty YouTube.* |
| *Timing was better.* | *I had enough stuff planned to fill entire lesson. Had to actually cut some things out (just wouldn’t have enough time)* | *Make sure to have extra stuff to do in case time does go short, but make sure parts of lesson can be skipped over in case of time crunch.* |
| *Questioning was good.* | *Majority of the students could answer questions posed to the class.* | *Try introducing higher order questions (as per FA)* |
| *Activity was effective* | *Students loved it* | *Use this and other, up and moving activities again in the future.* |

**b) Effectiveness as a Teacher:**

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| **What was effective/ineffective about you as a teacher?** | **How do you know?** | **What steps will you take to improve?** |
| *Questions were too easy* | *Students could answer them no problem (although some struggled)* | *I will ask a range of questions (some which are easier, others which are higher order) to try to encompass everybody.* |
| *Dealing with wanderer* | *Did not let them interrupt my teaching, but still need to deal with their wandering* | *Give them an easy task to do at the beginning of the class related to the topic I will be teaching* |
| *Language* | *Was told to try to avoid slang as much as possible* | *Try to burn non-slang substitute words into my head, such as “folks”* |